goals:

- Go over the different ways to think about trigonometric functions.
- Let you know what sort of things we expect you to know in Calculus.
- Practice.

1. There are three particularly useful ways of thinking about trigonometric functions: (A) sides of a right triangle, (B) points on the unit circle in the xy-plane, (C) as a graph. Can you describe the sine function in each of these ways?

What is a radian?

2. Sketch the graph of $f(x) = \cos(x)$ from $[-\pi, 4\pi]$ and the graph of $g(x) = \tan(x)$ from $[-\pi/2, 3\pi/2]$.

3. Use graphs to solve the equations below.

   (a) $\cos x = 1$

   (b) $\sin x = 1$

   (c) $\tan x = 0$

   (d) $\sin x = 1/2$ (Find all solutions in $[0, 2\pi]$.)

4. Convert $2\pi/3$ radians and $5\pi/7$ radians to degrees.

5. Convert 20 degrees to radians.

6. Without a calculator evaluate:

   (a) $\sin(\frac{2\pi}{3})$ (b) $\cos(\frac{5\pi}{4})$ (c) $\tan(\frac{-\pi}{4})$

7. A wooden ramp is to be built with one end on the ground and the other end at the top of a short staircase. If the top of the staircase is 4 ft from the ground and the angle between the ground and the ramp is to be 10^o, how long does the ramp need to be?

8. Find $\cos\theta$ assuming that $\sin\theta = 2/7$ and θ is in the first quadrant.

9. Fill out the unit circle below without the use of a calculator.